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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/535,076	05/13/2005	Diane Elsie Hall	BP9861-00	1916
4249	7590	04/01/2008		
CAROL WILSON BP AMERICA INC. MAIL CODE 5 EAST 4101 WINFIELD ROAD WARRENVILLE, IL 60555			EXAMINER GOLOBOY, JAMES C	
			ART UNIT 1797	PAPER NUMBER
			NOTIFICATION DATE 04/01/2008	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	<b>Application No.</b> 10/535,076	<b>Applicant(s)</b> HALL, DIANE ELSIE	
	<b>Examiner</b> James Goloboy	<b>Art Unit</b> 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 13 May 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 16-58 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 16-58 is/are rejected.
- 7) ☒ Claim(s) 20-39 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____.                                     |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>5/13/05, 5/9/06, 9/14/06, 3/5/07</u> .                        | 6) <input type="checkbox"/> Other: _____.                         |



## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 20-39 are objected to because of the following informalities: Claims 20 and 21 depend on claim 1, which has been cancelled. The examiner recommends that claim 21 be made dependent on claim 16, and the claims have been considered in this manner in the rejections set forth below. The examiner recommends that claim 20 either be cancelled or made dependent on claim 16. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 28-30, 36-38, and 55-57 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The phrase "such as" in claims 28-29, 36-37 and 55-56 renders the claims indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d). Additionally, the limitation of "additives which might be used, at least in part, to replace ZDDP" is indefinite, as it is not clear what additives fall within the scope of this limitation.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 16, 21, 30, 40-41, 48-54, and 56-58 are rejected under 35 U.S.C. 102(b) as being anticipated by Chamberlin (U.S. Pat. No. 6,588,393).

In column 2 lines 42-61, Chamberlin discloses a method of operating an internal combustion engine comprising using a fuel and lubricating the engine with a low-sulfur lubricating oil. In column 14 lines 17-19 Chamberlin discloses that the engine can be a diesel engine, and in column 16 lines 40-44 discloses that the diesel fuel can be a low-sulfur diesel fuel. In column 3 lines 25-29 Chamberlin discloses that the engine can include a particulate trap. The method of operating a diesel engine of Chamberlin therefore meets the limitations of claim 16. While Chamberlin does not specifically discuss reducing the emissions of nucleation mode particles, Chamberlin discloses the claimed method of using a low-sulfur fuel in combination with a low-sulfur lubricant, and would therefore also reduce emissions of nucleation mode particles, including those with diameters such as those recited in claims 21 and 40-41.

In column 4 lines 54-62, Chamberlin discloses that the sulfur concentration of the lubricating oil falls within the ranges recited in claims 48-51. In column 4 lines 28-30 Chamberlin teaches that the lubricating oil is free of additives comprising zinc and phosphorus, and is therefore free of ZDDP, meeting the limitations of claims 52-54. In column 6 lines 40-42 Chamberlin discloses that the lubricating oil contains a dispersant,

and in column 13 lines 40 and 55-59 discloses that the composition can contain an anti-foam additive, both as recited in claim 58. In column 13 line 38 Chamberlin discloses that the composition can contain a corrosion inhibitor, as recited in claim 57. In the table in column 17 lines 30-63, Chamberlin discloses that aromatic amine and hindered phenolic antioxidants can be added to the composition, meeting the limitation of claim 56.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 22-27, 29-37, 39, and 42-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chamberlin.

The discussion of Chamberlin in paragraph 5 above is incorporated here by reference. While Chamberlin discloses a method meeting the limitations of claim 16 and

employing a low-sulfur diesel fuel, Chamberlin does not disclose a method using a fuel with a sulfur content falling within the ranges recited in the currently presented claims.

In column 16 lines 40-44, Chamberlin discloses that the diesel fuel can have a sulfur content of up to 500 ppm (0.05%), encompassing the ranges recited in claims 22, 24-26, 42, and 44-46. See MPEP 2144.05(I): "In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976);" Claims 22, 24-26, 42, and 44-46 are therefore rendered obvious, as are claims 23, 27, 31, 43, and 47, the limitations of which are met by Chamberlin as discussed in paragraph 5 above.

9. Claims 28, 36, and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chamberlin in view of Papay (U.S. pat. No. 5,652,201).

The discussions of Chamberlin in paragraphs 5 and 8 above are incorporated here by reference. Chamberlin discloses a method meeting the limitations of claims 16, 21, and 27, and utilizing a zinc-free low-sulfur lubricating oil. In column 13 line 40 Chamberlin discloses that the composition can further contain a friction modifier.

In column 4 lines 53-63, Papay discloses additive systems for metal-free lubricating oils, and in column 7 lines 57-60 discloses that the lubricating oils can be used in diesel engines. From column 46 line 51 through column 47 line 12, Papay discloses that the composition can contain friction modifiers, including oleamide,

glycerol oleates, amines, acids, and phosphate esters, all as recited in claims 28, 36, and 55.

It would have been obvious to one of ordinary skill in the art to use the specific friction modifiers of Papay as the friction modifier in the composition of Chamberlin, as Papay teaches that they are suitable friction modifier additives for metal-free lubricating oils for diesel engines.

10. Claims 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chamberlin in view of Alcorn (U.S. Pat. No. 4,869,738).

The discussions of Chamberlin in paragraphs 5 and 8 above are incorporated here by reference. Chamberlin discloses a method meeting the limitations of claim 16, but does not disclose the specific types of particle traps recited in claims 17-18.

In column 1 lines 4-8, Alcorn discloses a particulate trap for removing fine particle from a moving gas, such as a diesel exhaust gas. In column 2 lines 41-44, Alcorn discloses that the trap is continuously regenerating, as recited in claim 18. In the reference's claim 2, Alcorn discloses that the particles are removed by oxidation and in the reference's claim 13 discloses that the trap contains a catalyst for removing pollutants. It is therefore clear that the catalyst is an oxidation catalyst, as recited in claim 17. In column 8 lines 14-17 Alcorn discloses that the trap can also contain a filter, as recited in claim 17. The use of the continuously regenerating trap of Alcorn as the particulate trap in the method of Chamberlin therefore meets the limitations of claims 17-18.

11. Claims 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chamberlin in view of Cooper (U.S. Pat. No. 4,902,487) in light of the evidence provided by Twigg (U.S. Pat. No. 6,294,141).

The discussions of Chamberlin in paragraphs 5 and 8 above are incorporated here by reference. Chamberlin discloses a method meeting the limitations of claim 16, but does not disclose the specific types of particle traps recited in claims 17-18, nor does Chamberlin specifically disclose a heavy duty diesel engine.

Cooper, in column 1 lines 4-56, discloses a particulate trap for diesel engines which comprises a filter and a catalyst. In column 2 lines 16-21, Cooper discloses that the trap contains a platinum or other platinum group metal oxidation catalyst. The trap of Cooper therefore meets the limitations of claim 17. The results shown in Figure 4 and discussed in column 10 lines 19-45 show that the trap is useful in heavy duty diesel engines, as recited in claim 20.

While Cooper does not refer to the trap as a continuously regenerating trap, Twigg, in column 1 lines 25-36, refers to the trap of Cooper as a continuously regenerating trap. The use of the trap of Cooper as the particle trap in the method of Chamberlin therefore meets the limitations of claim 18.

It would have been obvious to one of ordinary skill in the art to use the trap of Cooper as the particle trap in the method of Chamberlin, as Cooper teaches that the trap provides superior performance in removing particulates from heavy duty diesel exhaust streams.

***Conclusion***

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Curtis (U.S. PG Pub. No. 2002/0151445) discloses base oils that reduce particulate emissions from heavy duty diesel engines. Holt (U.S. Pat. No. 6,187,723) discloses that low-ash, zinc-free lubricant oils reduce particulate emissions.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Goloboy whose telephone number is (571)272-2476. The examiner can normally be reached on M-F 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JCG

/Glenn A Caldarola/  
Acting SPE of Art Unit 1797

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